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NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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Vol. LXXI FEBRUARY, 1919 No. 8

EDITORIAL

POSTGRADUATE STUDY OF MEDICINE.

The Teutonic fetich has been broken; the glamor of medical study at Vienna or Berlin has passed with the reflexes of the war. The opportunities may be yet afforded, but there will be no haste among American physicians to seek the fields in which they were so successfully exploited for many years before the war. More than this, the experiences of so many of the younger profession in the field, with every faculty alert and in constant training, will have provided study enough for many and for some time to come.

Time will be afforded, then, to reconstruct the idea of post-

graduate study both at home and abroad. The intensive courses provided for the Medical Reserve Corps officers in the larger cities and under the auspices of medical colleges of the first rank demonstrated conclusively what could be done, and many of us have wondered that such courses had not been arranged before.

The practical results were exceedingly valuable for efficient service in the Medical Corps of the army, and the number of men specially trained in laboratory, orthopedic or other special surgery, heart and lung diagnosis, sanitary and hygienic practice, etc., has been multiplied many times. The return of these men to their own communites will encourage further study among others, and the educational institutions in our large centers must be ready to afford such training.

Both in England and France the movement is already started to interest American physicians in the medical opportunity afforded. Paris, Bordeaux, Nancy and Lyons have for many years offered excellent material and in so generous a manner that Americans have overlooked the great opportunities. The Latin-American countries have long looked on Paris as the center of scientific medicine, and the French-speaking medicos of New Orleans and of Louisiana have in years gone by considered Paris as the place to complete a medical training.

There has been too much commercialization of postgraduate medicine in the Teutonic countries to make for the best, and the reflex of this has shown in places in the United States where the schools for postgraduate study have been mere melting-pots, with no academic aims.

The Mayo Foundation has at least offered a clear example of what graduate medical instruction should be, upon a plane which requires academic preparation before and during the period of study in the regular medical course. Such institutions are necessary and, with such endowment as Minnesota (with which the Mayo Foundation operates), Harvard, Cornell and Hopkins now possess, there should be afforded ample opportunity for advanced medical education for our own graduates and for those who come from abroad. Hereafter the teachers and exponents of scientific medicine must come from such schools of training. The exigencies of livelihood, however, demand practical postgraduate courses for the men who have to meet the sick and the maimed in every-day life, and

while they may be scientific as well, they must have ready, practical knowledge and of the most advanced form.

The schools of postgraduate instruction must organize to that end. The medical colleges of this country have an excellent co-operative organization, with a systematic agreement upon the methods and regulation of medical study and with accepted standards. Is it not timely that the institutions aiming at graduate and "postgraduate" instruction should get together and consider some more tangible organization than at present exists?

Just at present, the partial training received by medical practitioners at the various camps seems to have whetted their appetite for learning, and a great many are journeying from the tent to the school, if we are to judge by our experience here at the Polyclinic. Even though some of the men have already put aside their uniforms, glad to resume their easy-fitting civilian togs, those in khaki are as numerous as the men in their plain clothes at the clinics and in the laboratories of the Graduate School of Medicine of Tulane at present. They have come, and are coming, from all over the country, and they seem to realize better than before what they need in the way of instruction and opportunities for work.

As ever, the more a man knows the more he realizes how much he has to learn—an encouraging thought for those engaged in graduate teaching and a further argument in favor of their better organization.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

GALL-STONE DISEASE COMPLICATING PREGNANCY.

By AIMÉ PAUL HEINECK, M. D., Chicago.

During gestation, women are subject to many surgical conditions. The safety of the product of conception, the safety of the mother, demand that our knowledge of these surgical ailments be increased. Definite and accurate conclusions should be formulated as to the most opportune, most appropriate and, therefore, the most scientific treatment of any and all surgical states complicating pregnancy. In previous contributions we stated that every case of ectopic pregnancy, irrespective of type or stage of development, calls for the immediate ablation of the ectopic ovum. Immediate operative removal of the ectopic ovum terminates the gestation and protects the mother from the morbidity and fatality incident to extra-uterine pregnancy.

In other contributions, also published in these columns, we urged that every case of appendicitis complicating pregnancy be subjected to operation during gestation. Appendicitis is a surgical disease; when it complicates pregnancy it calls for the immediate operative removal of the inflamed appendix, irrespective of the type of inflammation, irrespective of the age of the pregnancy. In women, previous to and during the child-bearing period, the non-operative treatment of appendicitis invites disaster, immediate, remote, or both. The timely removal of the inflamed appendix to a great extent protects the mother from the complications and sequelæ, from the morbidity and mortality incident to appendicitis. Operative removal of a diseased appendix does not interrupt gestation, does not exert any unfavorable influence on delivery.

The frequency of cholelithiasis makes this condition one of great practical interest. In the collective statistics of nineteen European and American authors, 80,802 necropsies, the frequency averaged 5.94 per cent (Hesse). As the manifestations of gall-stone disease are often unrecognized, misinterpreted or misdiagnosed, its in-

cidence is greater than is supposed, is far greater than the number of reported cases would lead us to believe. It occurs in both sexes and at all ages, in the fat, in the lean, in the weak, and in the strong. The older the patient, the more liable is he or she to have gall-stones. "Gall-bladder disease is preëminently a disease of the middle-aged female, but is by no means confined to that age or sex" (Deaver.)

Gall-stone disease is of common occurrence during pregnancy, during the puerperium, during lactation. In fact, its greatest incidence is in the child-bearing period. Statistics have established beyond dispute that gall-stone disease, latent or manifest, is more common in women than in men. Out of 655 patients laparotomized for gall-stones, 536 were women, 119 men (Kehr). Of 1,244 women operated upon for uterine myomata at the Mayo Clinic, 92, or 7.1 per cent, had gall-stones.

STATISTICS OF 940 CASES OF CHOLELITHIASIS (K. GRUBE).

Age.	10–21	21–30	31–40	41–50	51–60	61–70	71–80
Male.	2	6	44	55	38	6	5
Female.	8	114	213	215	148	52	14
Married, with children.	1	82	177	176	124	44	9
Married, without children.	1	8	9	12	5	6	3
Unmarried women . . .	6	24	27	27	19	2	2

Unquestionably, child-bearing has something to do with the frequency of gall-stones in that state. Cholelithiasis may complicate a pregnancy otherwise normal; it has been found associated with ectopic gestation (Brothers). It occurs in primiparæ (Heineck), deutoparæ (Barillon), multiparæ, VIII-para (Roith), IX-para (Graham). Manifestations of cholelithiasis may precede, coincide with, or follow an abortion or a premature labor. In seven of the analyzed cases there was a history of one or more abortions accidental or induced—Watson, one; Villard, two; Peterson, six; Brothers, ten. Gall-stone disease may become manifest and necessitate operative relief at any period of gestation—second month (Bosse), third month (Roith), fifth month (Mack), sixth month (Moulden), seventh month (Davis). In a large number of cases the initial symptoms first occur during the child-bearing period (Rudeaux). Our cases can be classified according to patient's age at time of operation, as follows: The youngest was 21 years old (Villard), the oldest 42 years (Amann). From 25 to 29 years, inclusive, nineteen patients; 30 to 35 years, inclusive, eleven patients; 36 to 40 years, inclusive, 5 patients. Ploger reports cases in which

there was a definite aggravation of symptoms during pregnancy; Naxera reports eight cases in which the first attacks of biliary colic occurred during gestation. "Seventy-five per cent of gall-stones are found in women, and in 80 per cent of these patients the symptoms developed during pregnancy" (Torrance). Gall-stones are more commonly found in women who have borne children than in those who have remained sterile. Osler, quoting Naunyn, states that 90 per cent of women with gall-stones have borne children. "Eighty-four per cent of 135 women with gall-stones had borne children" (Peterson).

Literature of the subject contains case reports like the following: In an empyematous gall-bladder, associated with pericholecystitis, perforation from stones occurred during labor. Two days later the patient was operated, and thorough drainage was instituted; sepsis developed. Death occurred on the third post-operative day (Rose). Rupture of a calculous gall-bladder can occur previous to, during or after labor. Pinard successfuly operated a case of calculous cholecystitis on the eleventh day of the puerperium. Vineburg incised the gall-bladder in two cases of acute cholecystitis, in one case on the tenth day, in the other on the twelfth day after delivery, and removed numerous small stones therefrom. Both cases recovered. In the same report he discusses a case of acute diffuse peritonitis consecutive to a ruptured gall-bladder, supervening a few hours after normal delivery. The condition was too grave to warrant surgical intervention; death resulted twenty-four hours later. This patient had had, during her pregnancy, several attacks of biliary colic; her distended gall-bladder had been mapped out. Potocki's patient, a deutopara in the eight and one-half month of a normal pregnancy, had a sudden attack of right hypochondriac pain, nausea, vomiting, etc. Labor having started, the patient was delivered of a living, normal child. Eleven hours after the termination of labor a cholecystotomy was performed; the gall-bladder contained pus and numerous calculi. Drainage; recovery. In the discussion provoked by Graham's case there was reported a case of death from general peritonitis due to rupture of the gall-bladder during labor. The post-mortem revealed the rupture and 250 stones scattered about in the abdomen. Medical attendants should keep in mind that fever during the puerperium can be due to causes other than puerperal fever—appendicitis, gall-bladder disease, etc.

Greater familiarity with the symptomatology, clinical course and

treatment of cholelithiasis complicating pregnancy will lessen the frequency of occurrences such as the preceding, and will also qualify us to combat successfully the various manifestations of gall-stone disease. I have analyzed and studied all the cases of undoubted gall-stone disease complicating pregnancy reported with sufficient data, thirty cases in all, in the French, English and German medical literature during the years 1900-1918, inclusive.* Many more cases were studied, but owing to the fact that they are not reported with sufficient detail they have influenced our conclusions only in a general way. In each case the diagnosis was verified either at the time of operation or at the autopsy.

ETIOLOGY.

The cause of gall-stone disease is not definitely known. Numerous theories have been advanced; not one has as yet been found worthy of general acceptance. The following three factors, owing to their frequency previous to or during the existence of gall-stone disease, impress one forcibly as being important predisposing causes. In the individual case, one, two or all of these three favoring influences may be operative:

(a) Conditions associated with, favoring or causing biliary stasis.

(b) Inflammatory states of the biliary tract, primary or secondary to local disease or to some general febrile state.

(c) Regimens or diatheses favoring or causing hypercholesterinemia.

Cholesterin, the principal component of gall-stones, is derived from the bile. Simple bile-stasis can, through the precipitation of cholesterin, lead to cholesterin-stone formation. Precipitation is prone to occur in inspissated bile, and the elements thrown down may lead to stone formation. In the later months of pregnancy the abdominal muscles and the diaphragm contract feebly, and the bile, being inefficiently expelled, stagnates in the gall-bladder.

Stasis, in addition to separating out the essential constituents of gall-stones from the bile, favors the growth of bacteria in the residual fluid. According to Sherrington, bacteria cannot enter the bile-ducts as long as the bile is expelled at regular intervals. Bile is not an antiseptic; it does not prevent the development of bacteria;

*All the periodicals to be found at the John Crerar Library, Chicago, Ill.

left exposed to bacterial contamination, it undergoes putrefaction. Obstruction to the bile outflow may be due to foreign bodies present in the gall-bladder or, in the larger bile-ducts, may be determined by inflammatory or other degenerative changes involving the gall-bladder or the bile-ducts, or may result from such pathological states of contagious organs as lead to impingement of one or more of the latter upon the bile-ducts. Obesity, sedentary life, constipation, tight clothing, such as ill-fitting and improper corsets, etc., are held by some to be predisposing factors. Miyake believes that the non-wearing of corsets by Japanese women is one of the principal reasons why gall-stones are so infrequent among them.

Bacterial organisms are said to be the most essential cause in the majority of cases of gall-stones. In this connection, one should not ignore the relation of mouth and teeth infections to appendicitis and cholecystitis. In some cases, supplementing the noxious influence of bile stasis, in others acting independently, in many acting conjointly, there is present a bacterial inflammation of the mucous membrane of the gall-bladder, of the bile-ducts, or of both. If the stone be of aseptic origin, the abnormal element lies in the composition of the bile; if the stone be of inflammatory origin, the pathological condition is the cholecystitis or catarrh of the gall-bladder.

A history of acute cholecystitis first observed within a few weeks or months of parturition is given by many of the patients operated upon for gall-stone disease. Both pregnancy and the puerperium are not infrequently complicated by acute exacerbations or recurrences of cholecystitis (Bettmann). The gastro-intestinal disturbances and constipation that attend the pregnant state no doubt favor the migration of the bacillus coli to the gall-bladder.

Although infection and retarded bile outflow predispose to gall-stone formation, they are not all-sufficient. Occlusion of the cystic or of the common duct may co-exist with an infected gall-bladder, and yet no gall-stones form. In order to produce calculi, infections of the gall-bladder must be of low type: colon bacillus, bacillus typhosus, staphylococcus, etc. Typhoid fever is considered an important etiological factor; it occurs in all lands and among all races, still gall-stones are very uncommon in the tropics; typhoid fever is less prevalent than formerly, but there seems to be no decrease in the number of patients having gall-stones.

Diathetic conditions can so alter the composition of the bile as

to favor—suitable local conditions existing—the production of calculi. The supposition is that gall-stones are deposited as a result of error in metabolism (over-concentration of cholesterin in blood and bile). Aschoff's theory of gall-stone formation can be stated briefly as follows: Cholesterin is a normal constituent of the bile and of the blood, its amount therein depending upon the amount of cholesterin in the food. A diet rich in fats and albuminous foods raises the cholesterin content of the bile. There is a distinct cholesterin diathesis. Persons with this diathesis, even upon an ordinary diet, retain their lipoids, an increased cholesterin content of the blood and of the bile results, and sooner or later a sudden precipitation of the bile cholesterin in the form of gall-stones may occur. Stones are often present in patients with no excess of cholesterin in their blood, the cholesterin shower having occurred at some previous time.

While in the pregnant woman the presence of hypercholesterinemia associated with a clinical history of gall-stones is strongly suggestive of cholelithiasis, a low cholesterin figure does not prove the absence of gall-stones. The cholesterol increase becomes manifest during the later half of gestation (Slemons and Curtis).

The sedentary life of the pregnant woman and the encroachment of the enlarging pregnant uterus upon the liver and its biliary passages favor bile stasis. The normal obstetric patient eliminates less, during the entire period of gestation, than the normal non-pregnant woman. There is no well-recognized line of demarcation between normal and pathologic pregnancy. During pregnancy the fetal metabolism throws extra work upon the maternal liver; this may determine a temporary impairment of function, an hepatic insufficiency, evidenced by urobilinuria, alimentary glycosuria, moderate icterus, etc. This added stress also predisposes the liver to local changes, evidenced by "the liver of pregnancy," icterus gravidarum, acute yellow atrophy of the liver, etc. The factors enumerated above, taken in connection with the fact that the bile and blood of pregnant women contain more cholesterin than the bile and blood of men or non-pregnant women, explains in part the greater frequency of gall-stones in child-bearing women, explain in part the undeniable etiological influence of pregnancy in gall-stones formation.

PATHOLOGY.

One, two, three or more biliary calculi may be present in the

same patient. From a pregnant patient Moulden removed 17 biliary calculi; Bosse, 26; Graham, 80 odd; Roith, 84; Finkelstone, 86; Brothers, 250. In reporting his case, Davis says the calculi were "too numerous to count."

Gall-stones vary in volume, in shape, in location. Bishops says that in his case the calculi were "like fig seeds"; Mack that they were "pea-shaped"; Barillon, "mulberry-shaped"; Peterson, "facetted." In Rissmann's case the calculus was large, long and elliptical; in Roith's, pigeon-egg sized. In many of the cases, where numerous, the calculi were pea-sized.

Gall-stones usually develop in the gall-bladder, rarely in any other portion of the biliary tract. In their wandering they may lodge in the hepatic duct, in the cystic duct. "Seventeen stones were scooped out of the dilated cystic duct" (Moulden) (Later Moulden reoperated his patient, opened the duodenum and removed five small stones from the ampulla of Vater). In the common duct (Ploger); in the duodenal end of the common duct, including the ampulla of Vater (Rissmann). "Autopsy showed stones in hepatic duct and in common duct" (Peterson). From a VI-para, two months pregnant, Bosse removed one gall-stone from the common duct and twenty-five from the gall-bladder.

Stones may precede the presence of inflammatory changes in the gall-bladder, may be associated with and be the cause or effect of inflammation, slight, moderate or severe. The inflammation may be limited to the gall-bladder (cholecystitis), to the larger ducts (cholangitis), it may spread to the finer radicles of the biliary tract (diffuse cholangitis), or may be diffuse, involving the gall-bladder and the biliary passages. Cholelithiasis may result from a cholecystitis, and, once established, it becomes a factor in the maintenanec of the cholecystitis, in the causation of recurrent attacks of cholecystitis. Inflammation of the gall-bladder and bile-ducts is acute or chronic, ulcerative, perforative or adhesive, catarrhal, phlegmonous, suppurative or gangrenous. It may be limited to the mucous membrane, or involve part (Davis), or the entire thickness of the gall-bladder wall. In the latter case, adhesions are very liable to form between the gall-bladder and one or more contiguous organs. The exudate accompanying these inflammations is mucous, serous, sero-fibrinous or purulent (Graham) in nature. "Gall-bladder, in addition to calculi, contained 200 cubic c. m. of pus" (Moulden). If perforation or rupture of a gall-

bladder occur, the stones therein present may escape, either into the peritoneal cavity or into a mass of adhesions, or into the liver substance.

Graham, operating for a ruptured gall-bladder, a IV-para six months pregnant, removed three stones from the peritoneal cavity, one from the gall-bladder and two from the cystic duct. Should the inflamed gall-bladder become adherent to a neighboring viscus, the resulting adhesions may cause functional impairment or an internal fistula, through which the gall-stones may escape; if the gall-bladder become adherent to the abdominal wall, the inflammation may involve the latter and lead to the formation of an inflammatory mass, from which, ultimately, an external biliary fistula may result.

Amann's patient, a multipara, in the fifth month of pregnancy, noticed a painful mass, supposedly a fibroma, developing in the hepatic region. She went through a normal labor, and three months later this painful tumor-mass was successfully removed. It had resulted from a pericholecystic inflammatory process extending to and involving the contiguous abdominal wall and the appendix vermiformis, and it consisted of a ruptured gall-bladder and an extruded gall-stone, an appendix and an inflammatory tissue mass.

Impaction of a stone in the cystic duct may lead to:

1. Dilatation of the gall-bladder and a resulting *(a)* simple hydrops (the wall of the gall-bladder may be greatly thickened, may be paper-thin, may be almost transparent); *(b)* empyema.
2. Acute or chronic cholecystitis; catarrhal, serous, sero-fibrinous suppurative, gangrenous, phlegmonous, ulcerative, perforative, adhesive.
3. Sclerosis of the gall-bladder; atrophic, hypertrophic.
4. Calcification of the gall-bladder.

If the calculus becomes impacted in the common duct there may result any of the forementioned complications or a distention of the common duct (Bosse), with or without a cholangitis.

Inflammation in the common duct involving contiguous tissues may produce a thrombo-phlebitis, and thus interfere with the circulation through the liver, may extend to the head of the pancreas, changing it to a firm tumor (Finkelstone). In his case, Max Neu found the gall-bladder shrunken, the common duct widened and bound down by broad inflammatory adhesions to the duodenum.

Symptoms.

Moynihan, Mayo and many other careful clinical observers are of the opinion that gall-stones do not exist without producing symptoms. They state that the vague term "indigestion" is used variously by patients to indicate all the several forms of distress which are the forerunnners of a crisis of acute biliary colic. Parks claims that the statement, "may not cause symptoms," is an admission of inability to recognize incipient symptoms.

Gall-stones produce symptoms by irritation, by migration, by obstruction. Pain and tenderness are most constant and most important symptoms of cholelithiasis, being described by the patients under a variety of terms: *(a)* discomfort (Roith), *(b)* deep soreness (Villard), *(c)* biliousness, *(d)* dyspepsia, *(e)* gastric distress (Barillon); *(f)* neuralgia. The pain, usually limited to the region of the gall-bladder, radiates quite often to the epigastrium, subscapular region, neck, shoulders, arms, etc. "Pain in hepatic region" (Bosse). "Pain in right hypochondrium, extending to right shoulder" (Davis). "Repeated attacks of pain under the right scapula, extending around to the epigastrium" (Bishop). "Lancinating pain in epigastrium, radiating to back under the shoulder-blade" (Moulden). "Sudden attack of pain in region of navel" (Roith). "Pain in right hypochondrium, radiating to shoulder and to back" (Villard).

What causes this pain? Various factors, chief among which are: *(a)* The calculi themselves; *(b)* the inflammation present in the gall-bladder and in the biliary tracts; *(c)* adhesions of inflammatory origin binding the gall-bladder, cystic or common duct to adjacent organs. These adhesions can also determine severe functional disturbances of stomach and intestines.

"The most characteristic and constant sign of gall-bladder hypersensitiveness is the inability of the patient to take a full inspiration when the physician's fingers are hooked up deep beneath the right costal arch below the hepatic margin. The diaphragm forces the liver down until the sensitive gall-bladder reaches the examining fingers, when the inspiration suddenly ceases as though it had been shut off. I have never found this sign absent in a case of calculus or in infectious cases of gall-bladder disease." (Murphy.)

The localized tenderness and the rigidity of the abdominal wall may be so marked that satisfactory palpation is difficult, impossible. Other factors—thick abdominal wall, meteorism, deep-seated

location of the gall-bladder—may prevent the detection of the latter. In a few cases, however, a gall-bladder distended by calculi (Peterson, Roith), or by fluid, mucous, purulent, etc., in nature, or by both calculi and fluid (Villard), can easily be mapped out. A gall-bladder contracted by inflammation does not give rise to palpable tumor.

JAUNDICE.

In the diagnosis of gall-stone disease too much significance has been attached to the symptom of jaundice. It is an important sign, but is not to be considered essential to diagnosis; like hemorrhage in duodenal ulcer, it ought not to be waited for. Jaundice may not occur at all (Heineck, Finkelstone), it may be inconspicuous, it may be late, it may be inconstant. In some cases each attack of gall-stone colic is followed by transient jaundice (Bishop). The presence of jaundice was definitely recorded in twenty of our thirty cases. The jaundice was accompanied by its usual concomitant manifestations, digestive disturbances (Villard) beer-brown urine (Bosse, Davis, etc.), clay-colored stools (Ploger, Rissmann, etc.)

In diseases of the biliary passages, icterus is of two forms: it is of inflammatory or of lithogenous origin. The cause of the first is an inflammatory swelling of the mucous membrane of the biliary passages (Korte, Barillon). In gall-bladder infections the swelling of the mucous membrane may extend to and involve the common and hepatic ducts and thereby obstruct the bile-flow. The mechanical occlusions, partial or complete, of the common duct by a calculus, causes lithogenous jaundice. Icterus is frequently due to both inflammatory and calculus obstruction.

As long as a calculus remains in the gall-bladder, or in the cystic duct, jaundice is not likely to appear. In eleven of the cases in which jaundice was observed, there was present, with or without calculi, a common duct stone (Bosse, three cases; Heineck, Mack, two cases; Ploger, Rissmann, McNee, Roith, two cases). In a lesser number of cases the provocative cause was the compression of the common duct or of the extra-hepatic part of the hepatic duct by a large stone in the cystic duct, by swollen lymph-glands, by inflammatory exudates, by adhesions compressing or kinking the ducts, etc.

COLIC.

As stated before, gall-stones cause pain through the irritation,

infection and inflammation that result from their impaction in the neck of the gall-bladder or in any part of the bile-ducts. They also cause a characteristic lancinating pain, agonizing in nature, by meandering through the bile-ducts for a shorter or longer distance and setting up a spasm of the muscular wall behind the stone. This latter pain is intense, is designated as biliary colic, and is usually accompanied by chills, frequent vomiting, white, lard-like stools, and bile-stained urine.

Gall-stone colic can be caused by: (1) An adherent, inflamed gall-bladder containing calculi (Finkelstone) or having contained calculi; (2) an inflamed gall-bladder distended by fluid or stones, its cystic duct being occluded by inflammation or by a calculus (Barillon) or calculi; (3) the entrance into or attempted passage through some part of the ducts of a calculus, altered bile, mucus or other irritating foreign body; (4) the transit of a stone through the bile passages; (5) impaction of a stone in a dilated inflamed common duct or in any of its tributaries (Bosse, two cases; Ploger, Rissmann). All the cases with stone in the common duct gave a history of biliary colic.

Diagnosis.

If the symptoms are typical, the diagnosis of gall-stone disease is easy. In addition to recognizing the condition of cholelithiasis, the surgeon should, if possible, determine the exact location of the calculi and note what pathological conditions or changes may be present. Digestive disturbances are undoubtedly the cause of most failures to recognize early gall-bladder symptoms. Cholecystitis and cholelithiasis, owing to their reflex symptoms, are often mistaken for diseases of the stomach.

By keeping in mind that much of the dyspepsia of pregnancy is from unrecognized gall-stone disease and that gastric disturbances in pregnancy should receive careful consideration and not be regarded simply as concomitant features of the pregnant state, many diagnostic errors will be avoided. The discovery of calculi in the feces is evidence of their previous existence. It is not proof that any remain. X-ray pictures taken and interpreted by expert Rœntgenologists are of paramount importance in the diagnosis of biliary, renal or ureteral calculi. The absence of any Rœntgenographic shadow does not prove the absence of gall-stones. "X-ray revealed outline of gall-bladder filled with stones" (Peterson).

Things of importance to arrive at a diagnosis are:

1. An exact history, including the record of previous attacks of hepatic colic. "Previous attacks of biliary colic" (Rissmann, Ploger). "Gave a history of having had similar attacks during her previous pregnancies" (Davis). "Previous attacks of biliary colic. Three years ago first attack of pain in hepatic region. Since then, recurrent attacks" (Bosse).

2. The location of the tenderness and pain and the nature and radiating character of the latter.

3. A thorough examination, including a careful inspection and palpation of the abdomen, especially of the hypochondriac region.

4. The exclusion of such pathological conditions as simulate gall-stone disease—lead colic, renal colic, duodenal ulcer, nephrolithiasis, chronic appendicitis, movable kidney, infection of the genital tract. Cholecystitis is frequently diagnosed appendicitis, and *vice versa*. Gall-stone disease and appendicitis are frequently present in the same patient. Cholelithiasis may co-exist with other pathological states.

TREATMENT.

In cholelithiasis two urgent indications are present: (1) The removal of the calculus or calculi present in the gall-bladder or ducts; (2) the cure of the inflamed condition of the bile tracts. It is agreed that gall-stones should be removed. No one nowadays treats a vesical calculus by other procedures than operation. The spontaneous passage of a calculus through the intestine may bring about a cure, but other calculi usually remain in the gall-bladder, and any one of them may set up an inflammatory attack. In gall-stone disease, medical treatment is purely prophylactic, merely palliative; it is not curative. Moynihan says: I hold that, once a diagnosis has been made, operation is always indicated unless there are grave reasons forbidding resort to surgery. Reasons should not be asked to support a plea for operation, but to justify any other course than this."

The earlier the patients are operated, the more prompt the relief, the more numerous the complete recoveries. With advancing pregnancy, the technical difficulties incident to operations on the gall-bladder and bile-ducts increase. In these cases we never use chloroform as a general anesthetic; we are afraid of its action on the liver cells. We have been well pleased with the use of hard, round

cushion placed transversely beneath the dorso-lumbar region. One of three operations, choledochotomy, cholecystostomy or cholecystectomy, is usually performed, the type of operation selected depending, in the individual case, upon the location of the calculi and upon the nature of the associated complications. In the extraction of calculi from the bile-ducts, injury of the duct and wall should be avoided. Rather than risk this, the incision in the duct should be prolonged.

If the calculus or calculi are in the hepatic or common bile-duct, their removal is effected by incising the common duct; drainage is instituted through this incision (hepatic drainage).

Recovery followed in the three cases (Bosse two, Ploger one) in which this was done. Rissmann successfully removed a calculus from the duodenal end of the common duct by incising the anterior and posterior duodenal wall. In the cases in which stones were present in the gall-bladder and in the common duct the performance of a cholecystotomy and a choledochotomy at one sitting, plus the institution of hepatic drainage, gave satisfactory results. (Bosse, Mack, Neu, etc.) Roith, in a case in which stones were present in the common duct, removed the gall-bladder, then incised the common duct and drained through the latter. Recovery. Davis, in a patient seven months pregnant, performed a cholecystectomy. Forty-five days later the uterus was dilated manually and a premature fetus was extracted. In all of the other cases a cholecystostomy was performed. Finkelstone, in his case, did a cholecystostomy; one year later he performed a cholecystectomy. In some cases, owing to the co-existence of other pathological states, additional operative work was done. There were two deaths (Graham, Peterson) in the series of cases under consideration. In Graham's case the patient, at time of operation, had a general peritonitis from her ruptured gall-bladder. In Peterson's case there was considerable blood oozing (the coagulation time of the blood was seven minutes), and there developed acute post-operative suppression of urine. In those cases of gall-stone disease in which other pathological states were present, appropriate additional operations were performed. Erdmann, in his case did a cholecystostomy and an appendectomy. Brothers, in one case, removed 205 gall-stones, exsected one inch of the left tube to induce sterility, and did a right salpingo-oöphorectomy for an existing right tubal gestation.

There is a wide difference of opinion as to which operation, chole-

cystostomy or cholecystectomy, is indicated in gall-stone disease. Some operators almost invariably perform a cholecystostomy; others equally competent believe that cholecystectomy is the most universally applicable operation for the cure of cholelithiasis. Others do as Kummel, who says, "We remove the gall-bladder when we must; we save it when we can." It is well to select the operation which can be performed in the shortest possible time consistent with the existing conditions of the biliary passages. After cholecystectomy, redrainage of the biliary passages may prove extremely difficult and dangerous. The advocates of cholecystectomy claim that the removal of the organ takes away the possibility of stones being left behind, being reformed, that it removes an inflamed organ.

It is agreed that cholecystectomy is attended with more technical difficulties than cholecystostomy. It requires greater care to avoid injury to the bowels, vessels and main bile-ducts. It is wiser to choose the safer operation until the technic of the more complicated one has been mastered.

Cholecystostomy is the operation of election:

1. Whenever the patient's condition is so bad that the difficulties attending a cholecystectomy render its performance unsafe.

2. When the gall-bladder is not seriously damaged and when the cystic duct is not ulcerated or narrowed by stricture. It is believed that the gall-bladder has some other function than that of a mere receptacle of bile.

3. When the common duct is strictured.

4. If jaundice and pancreatitis complicate the gall-stone disease.

Cholecystectomy is indicated:

1. For very thick, acutely inflamed or gangrenous gall-bladders in which a stone is impacted in the cystic duct.

2. For chronically thickened gall-bladders. A thick-walled gall-bladder which has become functionless should always be removed. When the gall-bladder becomes thickened and hardened from long-continued inflammation it is manifestly impossible that it should dilate, no matter what obstruction there may be in the common duct.

3. For large gall-bladders distended with clear fluid and resulting from the impaction of a stone in the cystic duct.

4. For the "strawberry" gall-bladder (chronic thickening with ulceration).

5. For a calculous gall-badder adherent to the stomach, intestine or omentum.

6. When the walls of the gall-bladder are so modified by disease that neither the storage nor the expulsion of bile is possible.

Summary.

1. Gall-stone disease occurs with far greater frequency in women than in men; with far greater frequency in women that have borne children than in women that have remained sterile. Its period of greatest incidence is the child-bearing period.

2. Gall-stone disease, alone or associated with one or more other related or non-related pathological states, not uncommonly complicates a pregnancy otherwise normal or abnormal.

3. The first manifestations of cholelithiasis may date from the existing gestation or from a previous pregnancy; may precede, coincide with or follow an abortion or premature labor, accidental or induced.

4. All conditions that are associated with, that favor or cause *(a)* bile stasis, *(b)* inflammatory or degenerative changes involving the gall-bladder or bile tracts, *(c)* pathological alterations in the composition of the bile, such as hypercholesterinemia, etc., predispose to gall-stone disease.

5. Pregnancy is an important etiological factor in the causation of cholelithiasis.

6. The pathology of gall-stone disease complicating pregnancy is the pathology of gall-stone disease occurring in the non-pregnant. There may be present: *(a)* An inflammation of the gall-bladder or bile-ducts in which one, two or many calculi are lodged or impacted; *(b)* a distention of the gall-bladder or bile-ducts by mucus, pus or calculi; *(c)* a pericholecystic inflammation, calculous in origin, leading to adhesion formation, to fistula formation, etc., and corresponding disturbances of function; *(d)* changes in the liver; *(e)* changes in the pancreas.

7. Some of the symptoms of gall-stone disease are due to the irritation inherent to the presence of gall-stones, to their migration through or impaction in the bile-ducts or neck of the gall-bladder. Other symptoms are due to the concomitant inflammation of the gall-bladder, bile-ducts and neighboring organs, causative of or resulting from the presence of calculi.

8. Rupture of a gall-bladder distended by calculi, by fluid, mucus or purulent in nature, can occur during gestation or during or immediately after labor.

9. In the differential diagnosis of this condition, one should bear in mind: *(a)* That not infrequently gall-stone disease originates during or may complicate pregnancy; *(b)* that cholelithiasis and cholecystitis, owing to their reflex symptoms, are often mistaken for gastric disease; *(c)* that appendicitis and gall-stone disease frequently co-exist; *(d)* that digestive disturbances associated with acute pain and tenderness in the right hypochondriac region, with or without jaundice, with or without symptoms of biliary colic, are in themselves ample justification for operative exploration of the gall-bladder and ducts.

10. Cholelithiasis is a surgical disease; it calls for operative relief. Medical measures in this disease are merely palliative; appropriate surgical measures are curative.

11. Gall-stone disease in itself is never an indication for the artificial termination of pregnancy.

12. Whenever, for some cause or other, the abdomen is opened in women of the child-bearing age or past the child-bearing period, the gall-bladder and larger bile-ducts should be examined if it can be done *(a)* without or with only slight traumatizing of the tissues; *(b)* without exposing the patient to too much additional risk; *(c)* without contaminating clean peritoneum. Should the patient give a history of chronic digestive disturbances, the indication is absolute.

13. Women exposed to pregnancy, suffering from calculous cholecystitis or any other form of gall-stone disease, should be operated, the calculi removed and the gall-bladder drained.

14. Pregnancy does not contraindicate operations upon the gall-bladder or bile tracts. Peterson reported only three miscarriages in twenty-three reported operated cases. In only one (Roith) of the cases which we considered, did abortion follow the operation.

15. It has been repeatedly demonstrated that the operative relief and cure of cholelithiasis does not unfavorably influence gestation, does not unfavorably influence parturition. Icterus, whether acute or chronic, is a constant menace to the fetus.

16. Early operation is now, in proper hands, a safe procedure. It is an effectual cure of the symptoms produced by gall-stones; it has a low mortality and guarantees against serious complications in the future.

17. Cholecystostomy, cholecystectomy and choledochotomy have been successfully performed upon pregnant women for the relief

of gall-stones. After these operations, drainage is to be employed until the bile ceases to flow spontaneously through the wound, until complete subsidence of whatever degree of cholangitis existed.

18. The prognosis of operative intervention is not unfavorably influenced by the existence of pregnancy.

19. In persistent gall-bladder disease, trouble-changes in the urine manifested by the presence of casts and albumen are not uncommon and are not necessarily a bar to operative interference.

BIBLIOGRAPHY.

1. Amann. *Monat. f. Geburt. u. Gyn.*, Vol 41, 1, 1914.
2. Audebert, J., and Gilles, R. Rapports de la lithiase biliaire avec la grossesse et l'accouchement. *Ann. de Gynec. et d'Obst.*, S. 2, 788-811, 1910.
3. Audebert, J. Cholecystite gravidique. *J. de Med. de Par.*, S. 2, 26:492-494, 1914.
4. Bettmann, H. W. Cholecystitis; with suggestions for the prevention of gall-stones. *Med. Rec.*, N. Y., 74:923-925, 1908.
5. Bevan, A. D. Gall-stone Disease. Surg. Clin., Chicago, 1:1-20, February, 1917.
6. Bishop, E. Stanmore. On biliary calculi. *Lancet*, 1:1906, p. 817.
7. Bosse, B., and Fabricius, E. Ein Fall von metastatischer Appendizitis und Cholezystitis im Spatwochenbett, nebst Bermerkungen uber septische Infektionen von der Mundhohle aus. Wien klin. Rundschau, 24:591-608, 1910.
8. Branham, J. H. Gall-bladder surgery. *Am. J. Obst.*, 76:940-943, December, 1917.
9. Branson, Laura. Cholecystitis and cholelithiasis in their relation to pregnancy. *J. A. M. A.*, 57: 1690-1694, 1911.
10. Brothers, A. Report of a case from which 205 gall-stones were removed simultaneously with operation on cervix uteri and uterine adnexa. *Am. J. Surg.*, 23:142, 1909.
11. Bumpus, Harmon C. Rupture of the common bile-duct associated with subphrenic abscess. *Ann. Surg.*, 64:414-418, October, 1916.
12. Bunts, F. E. Difficulties in the diagnosis of gall-stones. *Am. M. J.*, 41:760-767, 1913.
13. Burke, R. A. Association of cholelithiasis and pregnancy. *J. Mich. M. Soc.*, 13:599, 1914.
14. Davis, A. B. Cholecystectomy in the seventh month of gestation, without interrupting pregnancy. Bull. Lying-in Hosp., N. Y., 2:2-4, 1905
15. Deaver, J. B. A report of the cases of gall-stone disease operated during the year 1914. *Ann. Surg.*, Phila., 1915, lxii, p. 197.
16. De Lee, Joseph B. Diagnosis and management of pregnancy in the presence of acute abdominal conditions. *S., G. O.*, 23:660-663, December, 1916.
17. Erdmann, J. W. Biliary surgery from January, 1910, to April 10, 1914, with an analysis of 270 cases. *Ann. Surg.*, Phila., 60:665-672, 1914.
18. Finkelstone, B. B. Report of a case of cholelithiasis complicating pregnancy. *Am. J. Obst.*, 74:818-823, November, 1916.
19. Goldammer Beitrage zur Chirurgie der Gallenwege. Illus. tables. *Beitr. z. klin. Chir.*, 55:41-272, 1907.
20. Graham, Joseph. Gallstone complicating pregnancy and the puerperium. Report of six cases. *South. M. J.*, 7:389-392, 1914.
21. Green, R. M. Cholecystitis and cholelithiasis associated with pregnancy. *Boston M. and S. J.*, 168:679-681, 1913.
22. Grube, K. Uber die Bedeutung der Schwangerschaft fur die Entstehung der Gallensteinkrankheit, 1912.
23. Hartmann, Otto. Bacteriologische Studien an der Hand von 46 Gallenstein operationen nebst einem Beitrage uber aetiologische Fragen des lithogenen Katarrhs der Gallenblase. *Deutsch. Ztschr. f. Chir.*, 68:207-238, 1903.
24. Hesse. Abstract *J. A. M. A.*, Vol. 64, p. 1460, 1914.
25. Hirst, B. C. The diagnosis, treatment and management of surgical conditions complicating the process of generation. *Am. J. Obst.*, 76:971-976, 1917.
26. Hofbauer, J. Uber Relationen weiblicher Generationsvorgange zur Klinik der Cholethiasis. *Med. klin.*, Berlin, 5:239-241, 1909.
27. Huggins, R. R. The toxemia of pregnancy as observed by the gynecologist. *Am. J. Obst.*, 56:588-606, 1907.
28. Kehr, Hans. Ein Ruckblick auf 720 Gallensteinlaparotomien, unter besonderer Berucksichtigung von 90 Hepatikusdrainagen. *Munchen med. Wchnschr*, 49, p. 2:1639, 1749, 1800, 1912.

29. Kunika, S. Die Entstehung der Gallensteine in ihrer klinischen Beziehung. *Beitr. z. klin. Chir.*, 79:579-612, 1912.
30. Lanford, J. A. The etiology and pathology of gall-stones. N. ORL. M. AND S. J., 68:177-182, 1914-1915.
31. Mack, Wilhelm. Die Cholecystotomien der Heidelberger chirurgischen Klinik, 1901-1906. *Beitr. z. klin. Chir.*, 57:535-580, 1908.
32. Mayo, Charles H. Gall-bladder diseases; etiology, symptoms and treatment. 1916.
33. McNee, J. W. Recent work on the etiology of gall-stones. *Glasgow M. J.*, 81:106-115, 1914.
34. Moulden, W. R. Empyema of gall-bladder complicating pregnancy. *Am. J. Obst.*, 75:873-875, 1917.
35. Moynihan, B. G. A. Gall-stones and their surgical treatment. Phila., 1905, p. 53.
36. Naxera, L. Die Pathogenese der Gallensteine vom klinischen Standpunkte. *Wish. klin. Rundschau*, 18:681-703, 1904.
37. Neu, Max. Die prognostische Bedeutung operativer und anderer Traumen fur die Fortdauer der Schwangerschaft. *Arch. f. Gynaek.*, Berlin, 80:408-421, 1906.
38. Opitz, E. Ueber Leberveranderungen in der Schwangerschaft. *Ztschr. f. Geburtsch. u. Gynak.*, 73:351-361, 1913.
39. Osler. Princ. Pract. of Med., 7 ed., 1910, pp. 549-562.
40. Parks, A. L. Gall-stones, with report of a case. *Penn. M. J.*, Athens, 18:922-924, 1914, 15.
41. Peterson, R. "The practice of obstetrics, in original contributions by American authors." Phila. and New York. Illus. Page 365.
42. Peterson, Reuben. Gall-stones during the course of 1,066 abdominal sections for pelvic diseases. *Surg., Gynec. and Obst.*, 20:284-291, 1915.
43. Peterson, R. Gall-stones during pregnancy and the puerperium. *Surg., Gynec. and Obst.*, 1910, Vol. 10, p. 1.
44. Peterson, R. Gallstones during pregnancy and the puerperium. *Surg., Gynec. and Obst.*, 11:1-11, 1910.
45. Pinard, M. A. Cholecystite pendant les suites de couches. Cholecystotomie pratiquée le onzieme jour après accouchement. Guerison. Compt. rend. Soc. d'obst. de gynec. et de pediat. de Paris. 4:212-220, 1902; *Ann. de gynec. et d'obst.*, 59:278-285, 1903.
46. Ploger, R. Die Gallensteinkrankheit in ihrer Beziehung zur Schwangerschaft und zum. Wochenbett. *Beitr. z. klin. Chir.*, 69:275-295, 1910.
47. Potocki, M. Cholecystomie pratiquée quelques heures après l'accouchement. Compt. rend. Soc. d'obst. de Gynec. et de pediat, de Paris, 4:155-165, June, 1902; *Ann. de gynec. et de'obst.*, 59:270-278, 1903.
48. Rissmann. Langdaurnder Steinverschluss des choledochus und des diverticulum Vateri. Transduodenale Operation in der Graviditat. *Zentralbl. f. Gynak.*, Leipz., 33:689-691, 1909.
49. Robson, A. W. Mayo. Diseases of the gall-bladder and bile-ducts, including gall-stones. Third ed., New York, p. 221.
50. Roith, O. Indikationen und Prognose der Gallensteinoperationen in der Schwangerschaft. *Monatschr. f. Geburtsh. u. Gynak.*, Berlin, 29:499-507, 1909.
51. Rose. Gall-stone complicating puerperium. *Zentralbl. fur Gynak.*, 27 (1):703-704, 1903.
52. Roth, H. Pathology and diagnosis of gall-stones and diseases of the biliary system. *Med. Rec.*, 77:689-698, 1910.
53. Rudeaux, P. De la colique hepatique pendant la puerperalite. *Arch. gen. de Med.*, Paris, 1:86-91, 1905.
54. Sitzenfrey, Anton. Uber die Beziehungen der Cholelithiasis zum weiblichen Geschlechtsleben und zu gynakologischen Leiden. Nebst Mitteilung eines durch Zystektomie geheilten Falles von Gallenblasenempyem im Wochenbett. *Prag. Med. Wochensch.*, 32:365-378, 1907.
55. Slemons, J. M., and Curtis, C. S. Cholesterol in the blood of mother and fetus. A preliminary note. *Am. J. Obst.*, N. Y., 75:569-575, 1917.
56. Tilton, B. T. Gall-stone disease. The present indications for operative interference. New York M. J., 103:436-440, March, 1916.
57. Villard, E. Un cas de Cholecystite suppurée au cours de la grossesse. *Lyon Med.* 100:34-39, 1903.
59. Vineberg, H. N. Acute cholecystitis in the puerperium. *Med. Rec.*, N. Y., 67:532-534, 1905.
60. Watson, J. Three cases of gall-stones associated with pregnancy. *Guy's Hosp. Gaz.*, 28:225, 1914.

SPINAL ANALGESIA, WITH A NEW LOCAL ANESTHETIC.

By P. JORDA KAHLE, M. D.,

Assistant in Surgery of Genito-Urinary Organs and Rectum, Graduate School of Medicine, Tulane, New Orleans, La.

In operations for various genito-urinary and rectal affections it has been the writer's custom for many years to employ spinal analgesia as the one of choice. Not only is this method of analgesia all that can be desired, but the patient is free from the danger of the immediate and after-effects of ether narcosis. Until the last two months I have given tropococain the preference in spinal analgesia, but due to the fact that this chemical was difficult to obtain, and the small quantity which was supplied me seemed to be inferior in quality, I determined to give a comparatively new agent for this purpose—apothesine—a trial.

Being assured that apothesine was low in toxicity and knowing that dentists had used it successfully in conduction anesthesia, I could see no reason why it would not fulfill other requirements for spinal analgesia. Accordingly, on August 22, 1918, the following operation was performed, using apothesine, at the Charity Hospital Clinic:

Patient, Ernest Turner, colored, male, age 47. Carcinoma of the penis, sixteen months' duration. Patient was injected intraspinally between the fourth and fifth lumbar vertebræ with one and one-quarter grains apothesine dissolved in 2 c. c. of sterile normal salt solution. Injection was made at 9:25. At this time pulse was 90, respiration 19. Regional analgesia was complete at 9:30 and the operation was begun. Operation consisted in amputation of the penis and removal of the inguinal glands. Time of the operation, one hour and thirty minutes. Analgesia throughout was perfect and the patient left the table with pulse 85, feeling fine. There were no after-effects, such as headache, etc.

Since that time I have performed the following operations, using apothesine as an analgesic: Two herniotomies, two vesico-vaginal fistulæ, four hemorrhoids, two internal urethrotomies, two prostatectomies, one cystotomy, three inguinal adenonectomies, three rectal fistulæ, one hydrocele, one nymphectomy, two internal proctectomies.

Analgesia has been perfect in all operations, lasting to the completion of each operation, the longest of which was one hour and fifteen minutes. Analgesia began within ten minutes, except in the inguinal adenonectomies and herniotomies, in which the analgesia was delayed for four or five minutes, due to the length of

time necessary for the diffusion of the analgesic to the iliohypogastric and ilioinguinal nerve roots.

The highest point of injection was between the eleventh and twelfth dorsal and the lowest between the fourth and fifth lumbar vertebræ. There were no after-results attributable to the analgesic in any case.

The use of apothesine in the above number of operations, twenty-four in all, has led me to believe that apothesine is a superior analgesic for this purpose and has the further advantage that it may be boiled for a short length of time without impairing its value.

PRESENTATION OF AN OBTURATOR.*

By A. G. FRIEDRICHS, M. D.

Dr. Friedrichs presented a case of congenital cleft-palate which was corrected by an obturator. The opening in the palate and velum was closed by an artificial apparatus, carrying the missing teeth and closing the aperture in the palate.

The case presented is a child of seven. Dr. Friedrichs stated that operative procedure is always recommended and, when the deformity cannot be remedied by operation, an obturator is the method by which these defects of development can be corrected. In all cases of congenital cleft, phonation, mastication and deglutition are interfered with. With the application of this apparatus all these defects are corrected. This obturator, which is here presented, returns the parts to their normal relation, affording the patient ability to masticate her food, an opportunity to correct her phonation and swallow her food without difficulty. This matter of speech is a matter of education and, should this child be properly taught, all evidence of difficulty and defect of speech can be cured. This obturator carries four front teeth, which hold out the lips and thereby restore the symmetry of the face. In these cases, taken early, as in this case, all the defects I have above referred to will be removed, and as she develops, and when she grows up, she will look and speak like any other normal child.

*Read before the Orleans Parish Medical Society, November 25, 1918. [Received for publication December 24, 1918.—EDS.]

DISCUSSION ON THE PAPER OF DR. FRIEDRICHS.

Dr. T. J. Wolfe: How long would this particular apparatus last without renewal?

Dr. Friedrichs: This, in its present condition, would probably last a year and would have to be renewed from time to time as the exigencies of the condition would require.

Thinking the inclemency of the weather would prevent the appearance of my patient, I brought down a number of plates showing a fracture of the inferior maxillary and its treatment. [These were produced.]

THE WOUNDS OF WAR FROM THE BIOLOGIST'S POINT OF OBSERVATION.*

By ERNESTO BERTARELLI, Professor of Hygiene, University of Parma.

Translated for the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL by LODILLA AMBROSE, Ph. M., New Orleans.

[993] The literature of medicine has not been miserly of writings concerning the wounds of which the war with incredible generosity has made a gift to man. All the other paragraphs of the observations made in this vast theater of pains and of death are still in the initial stage of compilation: the epidemiologist, for example, who is the student of the *then,* is a little of a posthumous observer; the surgeon—if he has spoken quickly just as he has operated quickly—has been able to recount little enough that was new, and abides his time for the macabre numerical summary of the extremities amputated, of the vertebræ damaged, of the cavities penetrated.

The bacteriologist, the biologist, on the contrary, has had a good hand at war's gaming table. From the first roar of the artillery, a material new and in part unexpected, has presented itself for study. The study evidently concerned the physician and the biologist: the eye of the former rested on the returns—apparently beyond the power of thought to conceive—from the gaseous edemata to the vast necroses, to the wounds long ago collected in the spiritual museums of remembrance. The latter had material for searching out the cause of the foul wounds, the mechanism of the vast crepitant destructions.

While we scarcely get a glimpse of other pictures of the war as

*Bertarelli, Ernesto. Le ferite di guerra dal punto di osservazione del biologo. *Gazz. d. Osp.*, Milano, 1916, xxxvii, 993-994. [The pages of the original article are given in square brackets.]

viewed with the eye of the physician, while we scarcely draw up the first summaries as the basis for eulogy or suspicion regarding vaccination against typhoid and cholera, it is evident that the paragraph of the wounds of war presents itself to the understanding. It is not merely the physician and the biologist who are interested in these wounds, but behind him who coldly reasons as to the causes of the evil, as to the intimate mechanism of the damage, stands the hosts of the new trembling ones who ask whether the defense will be possible, whether the advent of the useful will quickly accompany the knowledge of the facts.

And the biologist, even before he pronounces on the nature of the evil, may postulate a beautiful corollary which the last months of war have made clear; and that is, that one of the sad phenomena of war is already conquered by the work of man. And while war tetanus grows less and less every day, thanks to the prompt intervention with serum in the wounded, we are present at this magnificent spectacle of thousands of wounded men without the appearance of a single case of tetanus.

The phrase, "wounds of war," verily says little enough to the biologist and to the bacteriologist, since a wound of war is, *per se,* every lesion caused by gunshot and by cutting on the field of battle.

However, to wounds of war we may give, even if only abstractly, a more restricted signification, and in accordance with the thought assign it to soiled wounds, to continuous lesions determined by the splinters of shrapnel.

Hence, wound of war in this more restricted and, if you like, inappropriate sense, will mean a wound contaminated, infected. The germs of the infection are varied in the different cases; sometimes it may be a question—and these will be exceptional cases—of the bacillus of tetanus; more frequently it will be the *Bacillus perfringens** to which belongs the function of determining gaseous gangrene (or phlegmon); again another time it will be the bacillus of malignant edema. And to this list should be added germs of different species, from cocci to anaërobes; very recently these have been described as truly less terrible for the wounds than those already mentioned. but still they are always a menace to the benign healing wound.

But actually the suppurations from pyogenic cocci, which are disseminated in all the external world, and thus may at any in-

*Continental synonym for *B. aerogenes capsulatus.*—Dorland.

stant come in contact with the skin, and hence with the wounds (indeed the part which belongs to the cocci including the pyogenic ones in the flora which surrounds the wounds is considerable) are much less important and threatening than a botanical logic would permit us to believe. Frequently, even in soiled wounds, suppurations are absent; and in any event the therapy practiced today offers a very vast guarantee of holding back the process of suppuration.

More important quite for the course of the wounds and for their prognosis are the other germs mentioned.

There is no longer occasion for talking about the bacillus of tetanus: its history, its relative frequency in the external world, its activity when it arrives in the tissues, the conditions which maintain and accelerate its activity, are so well known and studied that it is not worth our while to return to it. At the most, there remains some uncertainty as to the diffusion in nature of the spores of tetanus and as to the varying frequency with which these are encountered and come in contact with possible wounds. But the documents which we possess do not now permit the drawing of any conclusion on the subject, even if there seems to be foundation for the suspicion that in any given locality there may be a very special frequency of the tetanigenic spores and consequently of wounds followed by tetanus.

Another established fact is the part that belongs to the *Bacillus perfringens* in gaseous gangrene. The strains of perfringens, as described up to the present time, represent some unities identical among themselves, with slight differences of form and of cultural aspect, and this apparently may approve the concept that it by itself does not in reality constitute the cultural strain.

Is the perfringens exclusively sufficient for determining gaseous gangrene, or are other germs necessary? The abundant but fragmentary literature of the bacteriology of war does [994] not render the response easy. The greatest part of the French authors (the largest contribution to the study of perfringens emanates from France) permit an affirmative belief; likewise, in the animals, the most extensive anatomical lesions which suggest well the morbid picture in man are obtained by employing solely the strain of perfringens.

And sometimes, on the other hand, the only finding observed in the tissues of the gaseous phlegmon is constituted by the perfringens.

That in actual practice there are frequently observed microbic associations in the wounds of war which proceed badly to recovery is true, but one may not on this account exclude this fact, that the perfringens by itself is capable of producing vast necroses.

With all this, we do not come to the point of saying that the *Bacillus perfringens* is a definite pathogenic agent capable of producing a typical lesion, as we say, for example, of the cocci of suppuration, although we know that suppurations are not always produced by the pyogenic cocci. It may happen most frequently that the perfringens does not figure in the treatises as a pathogenic germ, at least, not with the same right and the same measure in which the *Bacillus coli* figures; but, in fact, it may well be doubted whether this arises from an erroneous estimate or from an almost general forgetfulness, which the present findings of war will be valuable in causing to disappear forever.

Again, it is difficult to succeed in the exact evaluation of the part which the bacillus of malignant edema takes in gaseous gangrene.

First of all, it is doubtful, and a subject of controversy, whether there exists a single species or a single strain of the bacillus of malignant edema, or whether, on the contrary, there are several varieties or strains. Two recent communications to the Société de Biologie (and also an unpleasant controversy over a question of priority) would lead to the thought of the existence of various strains, or at least of some subspecies of the bacillus of malignant edema.

In the second place, it becomes truly difficult to evaluate in all its scope the part which such a germ (whether this is traced back to a single strain or whether divers subspecies should be grouped around it) must take in the various forms of gaseous gangrene. In some reports frequent symbioses are mentioned: on the contrary, the experimental data of Sapéegnée lead us to think that by itself the germ under discussion can produce extended gaseous necroses with crepitant edemata. Certain it is that this whole chapter is under revision to the degree that it has been possible to attain in this enormous and cruel experiment that we call war.

The biologist arrives at the conclusion that the scholastic pictures shown until yesterday as negatives of the infections do not suffice to explain such wounds of war as attract our attention to-day at every step; not only have some germs (by all I believe the perfringens) been taken into scanty consideration while they deserved

so much of it, but also new pictures and extensions of old conceptions must be made in order to render fairly comprehensible the pictures of the infections of war.

The documents are numerous from French and German sources: as for us, we lack the time and the practical possibility for emulating the others in this rivalry of knowledge, and, while bespeaking good Italian contributions, it is not easy to think that these will come forth abundantly. Certainly, to-morrow, on the basis of the facts ascertained in these days, a paragraph of the infection of wounds will necessarily be entirely rewritten.

NEWS AND COMMENT

Orleans Parish Medical Society Names Officers.—The following have been nominated and endorsed for officers of the Orleans Parish Medical Society, who were voted upon on December 14, 1918: President, Dr. H. E. Bernadas; vice-presidents, Drs. W. J. Durel, A. Eustis and T. J. Dimitry; secretary, Dr. Lucian Landry; treasurer, Dr. F. M. Johns; librarian, Dr. H. E. Nelson; additional members Board of Directors, Drs. P. J. Gelpi, F. R. Gomila and W. H. Knolle.

Ouachita Parish Medical Society Meeting.—On December 27, 1918, the Ouachita Parish Medical Society held its annual meeting in Monroe, La., and elected the following officers for the ensuing year: President, Dr. J. Q. Graves; vice-president, Dr. T. W. Wright; secretary-treasurer, Dr. F. C. Bennett; Dr. R. W. Faulk, delegate to the next meeting of the State Medical Society (Dr. R. W. O'Donnell, alternate). A banquet was served at Leon's after the close of the meeting.

Southern Surgeons Elect.—At the thirty-first annual meeting of the Southern Surgical Association, held in Baltimore, December 18 to 20, the following officers were elected: President, Dr. J. E. Thompson, Galveston, Texas; vice-presidents, Dr. Charles R. Robins, Richmond, Va., and George A. Hendon, Louisville, Ky.; secretary, Dr. Hubert A. Royster, Raleigh, N. C. (re-elected), and treasurer, Dr. Guy L. Hunner, Baltimore (re-elected). New Orleans was selected as the next meeting-place.

List of Physicians Engaged in Industrial Medicine.—Dr. Francis G. Patterson, Chief, Division of Industrial Hygiene and Engineering, Department of Labor and Industry, Harrisonburg, Pa., is desirous of obtaining a complete list of all physicians engaged in the practice of industrial medicine, in order that they may attend the 1919 conferences of Industrial Physicians and Surgeons, which conferences have been held semi-annually for several years. The attendance is usually good at these conferences and a great deal of valuable matter is presented in the discussions.

A Drug Epidemic in London.—According to a special cable dispatch from London to the New York *Sun* some weeks ago, a drug epidemic of the worst nature broke out in London, and the existence of an organization disseminating this vice was unearthed. Men as well as women, and many soldiers, were victims of the drug craze.

Committee to Study Influenza.—After a long discussion, in which opinion was about equally divided as to the value of certain practical measures for the prevention of the spread of influenza, the American Public Health Association, at its closing session in Chicago, December 13, appointed a committee of five to consider the question.

American Officers of Superior Intelligence.—The division of psychology of the Medical Department of the Army reports that, according to its tests, 83 per cent of the officers in the American Army had the "superior intelligence" required for a commissioned officer. Of the National Draft Army, less than 2¼ per cent were found to be so deficient in intelligence that they were recommended for discharge. To obtain these averages, tests of numbers of men were made at every camp in the United States. Only half of one per cent of 1,500,000, who were given the mental tests, were found to be so deficient in intelligence that they were recommended for discharge.

Spanish Edition of the Journal of the A. M. A.—The American Medical Association began in January the publication of a Spanish edition of its journal. The problems of a closer relationship between South American Republics and the United States makes the establishment of this publication an important step towards its solution. It is not expected that such an edition will be self-supporting for several years.

A Directory of Health Authorities.—The United States Public Health Service has published a directory of State and insular health authorities, giving the names and addresses of the principal officials and the sums which are annually appropriated for the expenditure of each particular board or organization. Copies may be obtained by applying to the superintendent of public documents, Washington, D. C.

United States Hospitals to Be Continued.—Recent advices from Washington indicate that the big United States Army hospitals at Camp Greene, Asheville, Azalea and Waynesville, N. C., will each be continued for the care of overseas returning patients for some time to come.

Venereal Subjects' Travel Restricted.—The Surgeon-General of the United States Public Health Service announces, under an amendment to the interstate quarantine regulations, that persons having venereal disease must obtain a permit in writing from the local health officer before they will be permitted to engage in interstate travel. This permit must state that such travel is not dangerous to the public health.

Medical Research.—The directors of the Fenger Memorial Fund have set aside $500 for medical investigation. It is desired that the work shall be of direct clinical bearing which may be carried out in an established institution which will furnish the necessary facilities and ordinary supplies free of cost. For full particulars, write to Ludvig Hektoen, 637 South Wood street, Chicago. Besides the Fenger Fund, Harvard University Medical School, the College of Physicians and Surgeons of Columbia University, and Johns Hopkins University have been benefited by the will of James Raphael Lamar, who bequeaths his residuary estate, estimated at $10,000,000, to the above medical institutions for medical research into the cause of diseases and into the principles of correct living, for the study and teaching of dietetics and of the effects of different foods and diets on the human system, the results of which study shall be disseminated among the people of the United States.

Meeting of National Science Society.—Representatives of twenty associations of scientific experts from virtually every State attended the meeting of the American Association for the Advancement of Science at Johns Hopkins University on December 26,

1918. The annual address was delivered by Dr. Theodore W. Richards, of Harvard University, the retiring president.

INFLUENZA A WORLD PLAGUE.—According to a writer in the London *Times,* 6,000,000 persons throughout the world perished from influenza and pneumonia during the last several months. It is estimated that the war caused the death of 20,000,000 persons in four and a half years, showing that influenza has been, proportionately, almost four times deadlier than the war.

ANONYMOUS GIFT TO TOURO INFIRMARY.—The Touro Infirmary, of New Orleans, recently received the gift of $25,000. The name of the donor was withheld.

PRESBYTERIAN HOSPITAL GRADUATES NURSES.—The graduating exercises of the class of 1919 of the New Orleans Presbyterian Hospital Training School for Nurses took place on January 14 in the Corinne Casanas Building. A short program followed the presentation of diplomas, after which a reception was held for the nurses.

REMOVALS.—Dr. W. H. Pope, Jr., from Trinity to 480 Lile street, Beaumont, Texas.

Dr. J. E. Evans, from Fulton to 901-2 Van Antwerp Building, Mobile, Ala.

Dr. M. R. Cushman, from Baton Rouge to Prairieville, La.

Dr. H. R. Shands, from Jackson, Miss., to Colorado Springs, Col.

Dr. Willis Walley, to 212½ West Capitol Street, Jackson, Miss.

MARRIED.—On December 26, 1918, Dr. Frank Theo. Beatrous, of New Orleans, to Miss Grace Phyllis Hayne, of Boyce, La.

On January 9, 1919, Dr. Charles J. Bloom, of New Orleans, to Miss Gladys Marie Reiss, also of this city.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL *will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the* JOURNAL *to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

The Principles of Hygiene, by D. H. Bergey, A. M., Dr. P. H. Sixth edition, thoroughly revised. W. B. Saunders Company, Philadelphia and London.

The continued demand for this work is an excellent argument for its merit. With the new edition brought up to date by careful revision, its popularity should continue. The large experience of the author as a teacher has given added value to the work as a textbook. The chapters on military hygiene are only too brief. Its importance should invite more space to this field. DYER.

A Treatise on Clinical Medicine, by William Hanna Thomson, M. D., LL. D. Second edition, revised. W. B. Saunders Company, Philadelphia and London.

It is certain that the very practical character of this book will find welcome among the practitioners of medicine, while the discursive method discounts the usefulness as a textbook. The author, with large experience, has incorporated much of this. Unfortunately, where he lacks experience, there is too much tendency to be dogmatic, and some times to show real ignorance. For example: "There is no treatment for leprosy, though injections of Calmette's antivenomous serum have been reported as actually curing the disease." One who may be familiar with a disease will scan the pages of a new text for a more modern viewpoint, and it is astonishing to have such a statement as the conclusion to the article on leprosy. The reviewer, as the author of the use of Calmette's antivenomous serum in leprosy, obtained amelioration in these cases, but discontinued the treatment as of less service than other remedies which did cure. It is worth remarking that the successful use of chaulmoogra oil at the Louisiana Leper Home and in the Philippines is too well known to have been wholly ignored by any modern textbook.

This particular lapse on the part of the author mars an otherwise serviceable book, but perhaps even this should not be taken too seriously, when the same fault is common among writers in this country, where the utilitarian features of contributions to medical literature often sacrifice the need for exact or complete statement. DYER.

Clinical Diagnosis. A Manual of Laboratory Methods, by James Campbell Todd, M. D., Professor of Pathology, University of Colorado. W. B. Saunders Company, Philadelphia and London, 1918.

The author presents in this, the fourth edition of Clinical Diagnosis, revised and reset, one of the very useful laboratory guides, both for students and practitioners. The various laboratory methods are stated clearly and concisely. Many of the newer tests are included, among them

the use of colorimeters and of the pocket spectroscope and methods of matching blood for transfusion, the fractional method of gastric analysis, vital staining of blood corpuscles, the mastic reaction in the spinal fluid, and many others. One chapter is devoted to serology.

The illustrations are descriptive, and there are four color plates new in this edition.

The book is an excellent addition to any medical man's library and is certain to prove a most satisfactory guide for medical students.

ELIZABETH BASS.

Johnson's Standard First Aid Manual, edited by Fred. B. Kilmer. Johnson & Johnson, New Brunswick, N. J.

This is the eighth revision of a simple, yet comprehensive, first aid manual intended to convey in a serviceable shape the information needed by those who wish to be posted in emergency or first aid treatment. The editor has had the suggestions and assistance of many who labor in the field of first aid. It is brought up to date, liberally illustrated and becomes a standard authority on first aid. C. C.

Diseases of the Heart and Blood Vessels, by Thomas E. Satterthwaite, M. D. Lemcke & Buechner, New York City.

The first chapter emphasizes the importance of general methods of diagnosis, including careful history-taking. The author seems to think that works on diagnosis have not accorded sufficient notice to Sahli's band. He admits, however, that "its significance has not yet been established." As to the Carrigan pulse, we are of the same opinion as the author—i. e., that it has been overestimated ..as one of the most characteristic signs of aortic insufficiency."

Thayer is cited as finding, on "autopsical examination of twenty-eight persons with aortic insufficiency uncomplicated by mitral stenosis in the Johns Hopkins Hospital, that in fourteen there had been no Carrigan pulse."

The author is discouraged by the fact that the polygraph and the electrocardiograph, along with the sphygmograph, are not of any great help in the differential diagnosis of valvular diseases. As to the phonocardigraph, he remarks that it may eventually be an aid, but thus far the tracings it has furnished have been disappointing.

In the paragraph on "Inorganic Murmurs," a great variety of conditions as to their causes are briefly summarized.

The importance of the venous pulse in furnishing information concerning the character of cardiovascular movements is commented upon. The terms "auricular flutter," "auricular fibrillation," and "ventricular fibrillation" are defined and explained.

Chapter II is on the "Venous Pulse." Chapter IV treats of "Arterial Blood Pressures." In regard to the sphygmomanometer, the author remarks: "The difference between the readings of the best modern instruments are usually so small that they are negligible, for the most part, clinically."

The most extensive chapter in the book is on the "Endocardiopathies," and the subject is well covered.

Chapter VI treats of "Cardiac Arythmias." "Cardiac Syphilis" forms the subject-matter of Chapter VIII.

Our own observation agrees with the author's statement that acute

aortitis is occasionally caused by tuberculosis, but much more often by syphilis, both diseases having a special affinity for the arteries.

Under "Graves' Disease," several forms of treatment are cited, each having its champion. Our own experience is that some cases respond to one of the different plans of treatment, while again many cases are not benefited in the least, but require surgical intervention.

Chapter XIV, "Circulatory Disorders and Epilepsy," deserves careful reading.

The author, in Chapter XV, has presented in brief but proper form the best of our present-day views on the subject of "Internal Secretions."

Chapters XVI, XVII, XVIII and XIX deal with "Congenital Affections," "Cardiac Neoplasms," "Cardiac Parasites," "Hygienic and Dietetic Treatment," respectively.

Chapter XX, "On Drug Therapy," shows careful consideration and proves that the author is not a therapeutic nihilist. We are pleased to add our approval to the quotation from the writing of H. A. Hare, that in "a certain number of cases of valvular disease the patient does not require digitalis or any other cardiac stimulant for the relief of his cardiac symptoms, but, on the other hand, in addition to rest, will often be greatly benefited by the administration of aconite, which has the same steadying effect upon the heart, through its influence on the heart muscles in cases of excessive compensation, and it diminishes the overaction of hypertrophy, which is sometimes confused with the tumultuous overaction of ruptured compensation."

The final chapter of the book deals with prognosis. It is generally conceded that the prognosis in cardiovascular disease should be given with caution, as there are many factors which must be considered. Be humane, but also have reserve. We like this book. STORCK.

PUBLICATIONS RECEIVED

C.V. MOSBY COMPANY, St. Louis, 1918.

Physiology and Biochemistry in Modern Medicine, by J. J. R. MacLeod, M. B., assisted by Roy G. Pearce, B. A., M. D.

Mental Diseases, by Walter Vose Gulick, M. D.

Information for the Tuberculous, by F. W. Wittich, A. M., M. D.

J. B. LIPPINCOTT COMPANY, Philadelphia and London, 1918.

Equilibrium and Vertigo, by Isaac H. Jones, M. A., M. D., with an analysis of pathologic cases, by Lewis Fisher, M. D.

P. BLAKISTON'S SON & CO., Philadelphia, 1918.

A Compend of Pharmacy, by F. E. Stewart, M. D., Ph. G., Phar. D.

Paper Work of the Medical Department of the United States Army, by Ralph W. Webster, M. D., Ph. D.

Massage and the Original Swedish Movements, by Kurre W. Ostrom. Eighth edition, revised and enlarged.

A Compend of Genito-Urinary Diseases and Syphilis, by Charles S. Hirsch, M. D. Third edition, revised.

YEAR BOOK PUBLISHERS, Chicago, 1918.

The Practical Medicine Series. Under the general editorial charge of Charles L. Mix, A. M., M. D. Volume VI: **Pharmacology and Therapeutics**, edited by Bernard Fantus, M. S., M. D.; **Preventive Medicine**, edited by Wm. A. Evans, M. S., M. D., LL. D., D. P. H.

PAUL B. HOEBER, New York, 1918.

Compendium of Histo-Pathological Technic, by Emma T. Adler.

W. B. SAUNDERS COMPANY, Philadelphia and London, 1918.

Surgical Treatment. Volumes 1, 2 and 3. By James Peter Warbasse, M. D.

WASHINGTON GOVERNMENT PRINTING OFFICE, Washington, D. C.

Annual Report of the Surgeon-General of the Public Health Service of the United States. For the fiscal year 1918.

Public Health Reports. Volume 33, Nos. 48, 49, 50 and 51.

Susceptibility to Hay Fever and Its Relation to Heredity, Age and Seasons, by Wm. Scheppegrell, M. D.

MISCELLANEOUS:

Transactions of the American Otological Society. Fifty-first annual meeting. Volume XIV. Part III.

Johnson's First Aid Manual. Edited by Fred B. Kilmer. Eighth edition, revised. (Published by Johnson & Johnson, New Brunswick, N. J.)

Fourth Annual Report of the Rockefeller Foundation. (International Health Board, 61 Broadway, New York, 1918.)

REPRINTS.

Recent Developments in Infant Feeding, by Emile Berliner.

The Presence of Food Accessories in Urine, Bile and Saliva, by A. M. Muckenfuss.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for December, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	1	------	1
Intermittent Fever (Malarial Cachexia)	------	------	------
Smallpox	------	------	------
Measles	------	------	------
Scarlet Fever	------	------	------
Whooping Cough	2	------	2
Diphtheria and Croup	------	1	1
Influenza	132	35	167
Cholera Nostras	------	------	------
Pyemia and Septicemia	------	------	------
Tuberculosis	54	57	111
Cancer	30	5	35
Rheumatism and Gout	2	2	4
Diabetes	4	------	4
Alcoholism	1	------	1
Encephalitis and Meningitis	1	1	2
Locomotor Ataxia	1	------	1
Congestion, Hemorrhage and Softening of Brain	22	12	34
Paralysis	1	6	7
Convulsions of Infancy	3	------	3
Other Diseases of Infancy	12	6	18
Teranus	------	------	------
Other Nervous Diseases	4	1	5
Heart Diseases	61	36	97
Bronchitis	17	3	20
Pneumonia and Broncho-Pneumonia	58	41	99
Other Respiratory Diseases	1	------	1
Ulcer of Stomach	1	------	1
Other Diseases of the Stomach	2	------	2
Diarrhea, Dysentery and Enteritis	10	10	20
Hernia, Intestinal Obstruction	5	2	7
Cirrhosis of Liver	6	1	7
Other Diseases of the Liver	1	------	1
Simple Peritonitis	------	------	------
Appendicitis	3	1	4
Bright's Disease	30	13	43
Other Genito-Urinary Diseases	10	12	22
Puerperal Diseases	7	3	10
Senile Debility	6	3	9
Suicide	4	1	5
Injuries	29	11	40
All Other Causes	24	18	42
TOTAL	545	281	826

Still-born Children—White, 25; colored, 20; total, 45.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per Annum for Month—White, 23.36; colored, 32.43; total, 25.81. Non-residents excluded, 22.72.

METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure..... 30.12
Mean temperature..... 58
Total precipitation..... 8.46 inches

Prevailing direction of wind, northwest.